Regional Seminar on Tackling Main Causes of Road Traffic Crashes, fatalities and injuries in Asia-Pacific Countries to Achieve Road Safety Targets of the Sustainable Development Goals

New Delhi, 24-25 April 2019

Speeding and Road Safety

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What is speed management and why it’s important in the ESCAP countries


Levels of speed management – iRAP assessment of roads

Challenges in ESCAP countries

Opportunities in ESCAP countries

Conclusion
- Speed management

- ‘Speeding’
  - Behaviours above the legal speed limit
  - may also include inappropriate speed for prevailing conditions in certain jurisdictions

- Deaths & injuries can still occur without speeding

- Management of speed
  = All actions that have the effects of reduced travel speeds
  i. Setting *survivable speed limits*: limiting travel speeds to the known limits of the human body
  ii. Prevention of speed limit violations (i.e. speeding)
Speed reduction benefits apply to ALL countries and regions of the world due to the ubiquitous laws of physics.

*Figure 1. Relationship between percentage change in speed and the percentage change in casualty crashes.*

Source: Global Road Safety Partnership (2008)¹⁵ and Nilsson 2004¹⁶
Pedestrians, cyclists and motorcyclists are vulnerable to death & injury at lower speeds.

Figure 2. The relationship between impact speed and survivability for different crash scenarios.

Large % of deaths are vulnerable road users in ESCAP countries.

Figure 11. Proportion of vulnerable road users in road crash deaths by ESCAP sub-regions.

Source: WHO (2018)
Only 5 countries are high income countries (HICs):
- ENEA – Japan, Republic of Korea;
- PAC – Australia, New Zealand;
- SEA – Singapore

All low and middle income countries (LMICs) in
- North and Central Asia
- South and South-West Asia

Country reported number of deaths
- a significant underestimation, particularly in LMICs

WHO estimate
- **812,992 lives** lost in a year
- Range: 2 (Micronesia) – 299,091 (India) deaths
Figure 9. WHO estimated road crash death rate per 100,000 population by ESCAP countries, sub-regions, and region.

Source: WHO (2018)
Figure 10. Proportion of road users in road crash deaths by ESCAP countries.

Source: WHO (2018)
The WHO Global Status Report (2018) identifies levels of speed management with respect to 7 parameters:

1) Presence of national speed limit law
2) Maximum urban speed limit
3) Maximum rural speed limit
4) Maximum motorway speed limit
5) Local authorities’ legal power to modify national speed limits
6) Enforcement of speed laws
7) Predominant type of enforcement
<table>
<thead>
<tr>
<th>Speed management policies</th>
<th>Total countries</th>
<th>East &amp; North-East Asia</th>
<th>North &amp; Central Asia</th>
<th>Pacific</th>
<th>South-East Asia</th>
<th>South &amp; South-West Asia</th>
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<tbody>
<tr>
<td>Presence of national speed limit law</td>
<td>42</td>
<td>4</td>
<td>9</td>
<td>9 (all but Vanuatu)</td>
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<td>1 – Nepal</td>
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<td>Max urban speed limit up to 50 km/h</td>
<td>10</td>
<td>1 – China</td>
<td>0</td>
<td>4 – Australia, Fiji, New Zealand, Tonga</td>
<td>3 – Indonesia, Myanmar, Timor-Leste</td>
<td>2 – Sri Lanka, Turkey</td>
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<tr>
<td>Max urban speed limit above 50 km/h</td>
<td>23</td>
<td>3 – Japan, Mongolia, Republic of Korea</td>
<td>All 9</td>
<td>2 – Papua New Guinea, Samoa</td>
<td>4 – Malaysia, Singapore, Thailand, Vietnam</td>
<td>5 – Afghanistan, Bangladesh, India, Iran, Pakistan</td>
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<td>0</td>
<td>2 – Solomon Islands, Vanuatu</td>
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<td>0</td>
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<td>Speed management policies</td>
<td>Total countries</td>
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<tr>
<td>Max rural speed limit 30 – 50 km/h</td>
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<td>0</td>
<td>1 – Micronesia</td>
<td>0</td>
<td>2 – Bhutan, Maldives</td>
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<td>0</td>
<td>1 – Tonga</td>
<td>0</td>
<td>1 – Sri Lanka</td>
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<td>Max rural speed limit up to 80 km/h</td>
<td>8</td>
<td>2 – Mongolia, Republic of Korea</td>
<td>0</td>
<td>2 – Fiji, Papua New Guinea</td>
<td>3 – Indonesia, Myanmar, Philippines</td>
<td>1 – Nepal</td>
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<tr>
<td>Max rural speed limit 90 km/h</td>
<td>14</td>
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<td>7 – Armenia, Azerbaijan, Georgia, Kyrgyzstan, Russian Federation, Tajikistan, Turkmenistan</td>
<td>0</td>
<td>6 – Cambodia, Lao PDR, Malaysia, Thailand, Timor-Leste, Viet Nam</td>
<td>1 – Afghanistan</td>
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<tr>
<td>Max rural speed limit up to 100 km/h or higher</td>
<td>9</td>
<td>0</td>
<td>2 – Kazakhstan, Uzbekistan</td>
<td>2 – Australia, New Zealand</td>
<td>0</td>
<td>5 – Bangladesh, India, Iran, Pakistan, Turkey</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1 – Singapore</td>
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<tr>
<td>Speed management policies</td>
<td>Total countries</td>
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<td>Max motorway speed limit up to 90km/h</td>
<td>7</td>
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<td>3 – Kiribati, Micronesia, Tonga</td>
<td>1 – Singapore</td>
<td>3 – Afghanistan, Bhutan, Nepal</td>
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<tr>
<td>Max motorway speed limit 100km/h or higher</td>
<td>26</td>
<td>All 4</td>
<td>All but Uzbekistan</td>
<td>2 – Australia, New Zealand</td>
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<td>6 – Bangladesh, India, Iran, Pakistan, Sri Lanka, Turkey</td>
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<td>4 – Papua New Guinea, Samoa, Solomon Islands, Vanuatu</td>
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<td>No motorway</td>
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<td>1 – Uzbekistan</td>
<td>2 – Myanmar, Philippines</td>
<td>0</td>
<td>1 – Maldives</td>
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<td>Local authorities can modify limits</td>
<td>15</td>
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<td>2 – Russia Federation, Turkmenistan</td>
<td>4 – Australia, Micronesia, New Zealand, Solomon Islands</td>
<td>3 – Indonesia, Malaysia, Philippines</td>
<td>3 – India, Pakistan, Turkey</td>
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<td>Speed management policies</td>
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<tr>
<td>Automated enforcement</td>
<td>8</td>
<td>2 – China, Republic of Korea</td>
<td>5 – Armenia, Azerbaijan, Georgia, Kazakhstan, Russia Federation</td>
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<td>1 – Myanmar</td>
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<td>Manual enforcement</td>
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<td>1 – Japan</td>
<td>2 – Tajikistan, Uzbekistan</td>
<td>5 – Kiribati, Micronesia, Samoa, Solomon Islands, Tonga</td>
<td>7 – Cambodia, Indonesia, Lao PDR, Malaysia, Philippines, Thailand, Timor-Leste</td>
<td>7 – Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka</td>
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<td>Automated and manual enforcement</td>
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<td>1 – Mongolia</td>
<td>2 – Kyrgyzstan, Turkmenistan</td>
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<td>2 – Iran, Turkey</td>
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<td>Enforcement type – no data</td>
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<td>0</td>
<td>2 – Papua New Guinea, Vanuatu</td>
<td>0</td>
<td>1 – Afghanistan</td>
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<tr>
<td>Average self-rating of enforcement levels</td>
<td>6.3</td>
<td>7</td>
<td>7.7</td>
<td>6.4</td>
<td>6</td>
<td>5.2</td>
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</tbody>
</table>
iRAP assessed roads in 13 ESCAP countries

- Star ratings inversely related to speed
- Much of the iRAP assessed roads in the 13 ESCAP countries are 1- or 2-star
  - Pedestrians - 82.6%
  - Motorcyclists - 71.3%
  - Vehicle occupants - 52.7%

ENEA: China, Japan;
PAC: Australia, Fiji, New Zealand, Papua New Guinea
SEA: Indonesia, Philippines, Thailand, Vietnam
SSWA: Bangladesh, Bhutan, Nepal
Figure 12. Proportion of star ratings for pedestrians on assessed roads in ESCAP countries.

Source: iRAP
Operating speeds poorly managed on many of the iRAP assessed ESCAP roads.
Challenges in ESCAP countries

- Limited leadership on speed management due to poor data
  - In LMICs, data may not be available or only exist in ‘hard’ paper files restricting data analysis capabilities
  - Real extent of contribution of speed often significantly underestimated in police statistics
Figure 8. Ratio of WHO estimated deaths to Country reported deaths.

Source: WHO (2018)
Challenges in ESCAP countries

- A common mistaken belief – higher speeds are necessary for the economy

- Much of the cost of speed
  - externalized by the transport companies
  - broadly paid by government and society, inhibiting national economic growth.
    - Deaths, injuries, noise, air pollution, greenhouse gas

- Countries with the lowest speed limits & the best road safety performances = the strongest economies.
  e.g. Sweden, Netherlands, Switzerland
Figure 5. Relationship between speed and different components of travel cost in Iran.

Source: Hosseiniou et al., 2015\textsuperscript{25}
Figure 7. Relationship between speed and different components of travel cost in Australia.

Source: Cameron (2012)
A turning point at which traffic flow improves with lower speeds
Challenges in ESCAP countries

- Prioritization of motorized vehicles in building the road network as though death & injury are an inevitable price of increased motorization:

  *Photo 1. Mix of pedestrians and vehicles on the streets of India.*

- Protection of the road users from death and injury must lie at the heart of mobility – ‘safety’ one of the 4 pillars.
Challenges in ESCAP countries

- The promotion of speed through vehicle advertising and manufacturing:
  - Cars as a status symbol
  - Speed glamorised in car ads
  - Cars designed to reach speeds higher than the legal speed limit
Challenges in ESCAP countries

- Misuse of police resource:
  - Motorcades, crime investigations & facilitating vehicle flows than road safety e.g. speeding enforcement
  - Police may view enforcement as confrontational to the public – prefer to implement softer approaches
  - On-the-spot roadside police fines may create opportunities for corrupt practices in enforcement.
Challenges in ESCAP countries

- Inherently dangerous vehicles are highly common in many ESCAP countries:

*Figure 17. The 20 countries with the greatest number of motorcyles per 1,000 population.*
Deaths per 100 million passenger kilometers

Source: European Transport Safety Council 2003
Challenges in ESCAP countries

- Tractors overrepresented in fatal crashes
- Passengers transported in what should be cargo areas, with no seat belts and facing sideways to the direction of travel
Opportunities for ESCAP countries

- 4 key opportunities to manage speed in ESCAP countries

1. Speed limit review – **survivable** speed limits;
2. Strengthening deterrence of speeding;
3. Speed reduction road engineering treatments;
1. Speed limit review – survivable speed limits

Figure 2. The relationship between impact speed and survivability for different crash scenarios.

2. Strengthening deterrence of speeding

- Law and enforcement generate deterrence – motivate people to stop violating speed limits
- Speed limit violations \(\rightarrow\) unattractive consequences with certainty – fines, licence points, licence suspension
- More likely & believable event
3. Speed reduction engineering measures

Photo 6. Example of speed hump on approach to pedestrian crossing in Nepal.
Photo 7. Example of raised platform crossing in Australia.
Photo 8. Example of rumble strips across the road as a warning for approaching speed hump in Vietnam.
Photo 9. Example of combined use of 30km/h speed limit and speed hump in a rural town in Georgia.

Photo 11. Separation of motorcycles from other motorised vehicles with a lower speed limit in the motorcycle lane in Vietnam.
4. Safer vehicles

- Intelligent Speed Assistance (ISA) technology
4. Safer vehicles

<table>
<thead>
<tr>
<th>Name</th>
<th>Countries</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Car Assessment Programme for Southeast Asia</td>
<td>Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam</td>
<td><a href="http://www.aseancap.org/v2/">http://www.aseancap.org/v2/</a></td>
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<td>China New Car Assessment Programme</td>
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<td>Safer Cars for India</td>
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<td><a href="http://www.globalncap.org/">http://www.globalncap.org/</a></td>
</tr>
</tbody>
</table>
Conclusions

- Speed reduction benefits are universal
- Many casualties in ESCAP countries are VRUs
- Travel speeds in ESCAP countries not sufficiently controlled to the known limits of the human body
- Many effective speed management interventions available for adoption in ESCAP countries
"There is more to life than increasing its speed."

Mahatma Gandhi

Thank you for your attention!

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